

02000 - SITE WORK

All site design must conform to the requirements of the Fairfax County Public Facilities Manual (PFM). All references for site construction and site details will be to the PFM or to Virginia Department of Transportation (VDOT) standards.

Specific areas of concern are listed below:

DESIGN

A. Drainage:

1. All storm sewer systems shall be designed for the 10-year storm event, all storm sewer pipes shall have a minimum slope of 2%, and all designs shall conform to Public Facilities Manual requirements.
2. Drainage systems shall be designed to convey water to a natural watercourse or to an existing storm drainage facility on or off site. Outfalls of drainage systems which discharge onto adjacent property shall be in easements from the property line to either an existing easement or to a natural watercourse with bed and banks.
3. Overland relief shall be provided so that buildings will not be flooded during major storms. Overland relief shall be evaluated using the 100-year storm.
4. The drainage system, including overland relief, shall be designed to account for flows from both on site and off site areas.
5. Reinforced concrete pipe shall be used for all drainage systems on County facilities. All structures and appurtenances used in the storm drainage system, such as endwalls, endsections, manholes and inlets, shall be either precast or cast-in-place reinforced concrete.
6. Grate inlets are expressly prohibited on County facilities.
7. No building or parts of buildings, including overhangs and footings, retaining walls, or other building structures shall be constructed or placed within, or encroached upon, County storm drainage easements or on County property where an easement would normally be required.

B. Grading:

1. Buildings must be sited so that no flooding will occur even if there is a failure of the piped system.
2. The site must be graded such that if the piped system did not exist, there would be no flooding of any buildings. The site plan will be reviewed against the above standard and must conform to it.

3. The first floor elevation of the building shall be 18" above the 100-year water surface elevation of the flood routing.
4. The building shall be sited on a pad that slopes away from the building at a slope of 5% for a minimum of 20 feet.
5. Grading will be designed to provide convenient access to the storm sewer and sanitary sewer facilities for maintenance and use.
6. No plants or landscaping shall be placed where they will interfere with the drainage patterns or where they will block access.
7. All grassed areas shall have a minimum slope of 2%.
8. All sidewalks with a slope greater than 3% shall have County standard UD-3 underdrain.

C. Stormwater Management:

1. All Stormwater Management (SWM) and Best Management Pond (BMP) facilities shall be designed for 2 year and 10 year storms and shall pass the 100-year storms as required by the PFM.
2. Design criteria relating to the maintenance of stormwater management facilities (detention and water quality) can be found in the latest version of the PFM, and include the following:
 - a. Access ways to be cleared, graded, or constructed with the facility construction.
 - b. Proximity to a public right-of-way to minimize the length of the access way.
 - c. Multiple access ways for major facilities.
 - d. No plantings, fences or other obstructions to access.
 - e. No plantings on the dam or berm of any stormwater management pond, without specific approval of the Project Manager.
 - f. No slopes greater than 3:1 along access ways.
 - g. One all-weather roadway for access to major facilities.
 - h. Provision of a concrete trickle ditch from the principal inlets to the outlet, with a minimum slope of 2%.
3. Underground stormwater detention and BMP chambers are specifically prohibited from use on County facilities.
4. Spot elevations should be provided in sufficient number to indicate to the Contractor the clear intent of the design for site grading and top of curb.

5. On parking lot islands, top of curb elevations shall be provided as shown below:



Width <5'

Width > 5'

Irregular shape

D. ADA:

1. All site design shall comply with the ADA. All variances from the ADA shall be brought to the attention of the project manager before incorporation into the plans. Accessible travel ways can not exceed a 2% cross slope, or a 5% running slope.

E. Landscape Development:

1. Designer Credentials

Any firm or individual charged with the preparation of landscape plans for new or existing public facilities must submit to the project manager the name of the person or persons who will be responsible for the plan preparation. No landscape plans, preliminary or final, may be submitted until the designer reviews this document and his or her credentials with the Fairfax County Urban Forestry Division. Persons preparing such plans must have a Bachelor's degree in Landscape Architecture, Horticulture or closely related field or certification as a landscape designer.

2. Plant Selection

The selection of plant materials will, in general, be made from the following list. Plant materials appropriate for the particular site and location should be reviewed and selected to promote short and long term survival. Common names of plants shall be included in the planting schedule for the site. Additional species may be used with approval of the Owner:

a. Shade Trees (deciduous)

Acer Campestre	Liquidambar
Acer Ginuala	Magnolia Virginiana
Acer Japonicum	Malus Sp.
Acer Palmatum	Oxydendrum Arboreum
Acer Platanoides Sp	Platanus Acerifolia
Acer Rubrum Bradford	Pyrus Calleryana
Acer Saccharum	Quercus Alba
Ailanthus Altissima	Quercus Borealis
Amelanchier Canadensis	Quercus Cerris
Amelanchier Laevis	Quercus Coccinea
Carpinus Betulus	Quercus Palustris
Cercidphyllum Japonicum	Quercus Phellos
Cladrastus Lutea 'Tortuosa'	Salix Matsudana
Fagus Grandifolia	Saphora Japonica
Fagus Sylvatica	Sorbus Alnifolia
Fraxinus Americana	Sorbus Aucuparia
Fraxinus Pennsylvanica	Tilia Cordata
Lanceolata	Tilia Tomentosa
Gliditsia Triacanthus Sp	Zelkova Serrata
Larix Decidua	Metasequoia Glyptostroboides

b. Ornamental and Flowering Trees

Cercis Canensis	Acer Palmatum
Chionanthus Virginicus	Prunus SerrulatVarieties
Cornus Sp	Prunus Yeodensis
Cotinus Coggygria	Prunus Cerasifera 'Thundercloud'
Franklinia Alatomaha	Acer Griseum
Stewartia Koreana	Magnolia
Soulangeana	
Styrax Japonica	Magnolia Stellata

c. Deciduous Shrubs

Abelia Grandiflora Intermedia	Forsythia
Buddleia Daudii Intermedia	Hamamelis
Chaenomeles Daudii	Hydrangea Sp.
Clematis Sp.	Kerria Japonica
Clethra Alnifolia Amabilis	Kolwitzia
Cornus Alba.	Potentilla Sp
Cotinus 'Royal Purple.	Syringa Sp
Daphne Burkwoodii.	Viburnum Sp
Deutzia Gracilis.	Weigelia Sp
Enkianthus Campanalatus	

d. Evergreen Shrubs

Aucuba Japonica	Osmanthos Sp.
Barberis (dwarf crimson pigmy)	Prunus Laurocerasus
Buxus Sp.	Rhododendron Sp.
Cotoneaster Sp.	Sarcococca Hookeriana
Euonymus Sp.	Skimmia Japonica
Gaultheria	Juniperus Sp.
Hypericum Sp. Ilex Sp.	Chamaecyparis Sp.
Kalmia Latifolia.	Cryptomeria Japonica (dwarf)
Teucrium Chamaedrys	Pinus Mugo Mugus
Nandina Domestica	Taxus Sp. Mahonia Sp
Arctostaphylos UVA-URSI	Yucca Filamentosa
Thuja Several Sp.	

e. Evergreen Trees

Cedrus Atlantica	Picea Pungens
Cedrus Deodora	Pinus Bungeana
Chamaecyparis Obtusa	Pinus Cembra
Cryptomeria Japonica	Pinus Densiflora
Ilex Opaca	Pinus Nigra
Juniperus Chinensis	Pinus Pinea
Juniperus Virginiana	Pinus Strobus
Picea Abies	Pinus Sylvestris
Picea Glauca	Pinus Thunbergil

f. Perennials and Ground Covers

Ajuga	Santolina
Day Lilies	Sedum
Hosta	Vinca Minor
Lavender Sp.	
Liriope	

3. Spacing

- a. Plants shall normally be spaced so that they will touch when they achieve 2/3 of their largest potential size. This rule obviously varies according to specific design objectives, but over-planting to achieve a premature "finished" look is not acceptable; nor is expanded spacings that result in permanent, unplanted, mulched areas.
- b. No woody shrub is to be planted closer than three feet (1 meter) from a building wall or no tree, other than columnar evergreens should be within 15 feet (4.5 meters).
- c. Maintain 10 feet clear around siamese connections and four feet clear around fire hydrants.

4. General Suggestions
 - a. Locate plants in areas that are compatible with their growth requirements, i.e., azaleas should be used in a semi-shaded, well-drained locations rather than in sunny, pavement surrounded areas.
 - b. Large mass planting beds or plants that will achieve a natural height or more than 3 feet (1 meter) shall not be used, except by roads, parking lots, etc. In general, such mass planting beds shall not be greater than 10 feet (3 meters) wide at any given continuous mulched bed.
 - c. Beds planted solely with low ground cover plants, such as vinca minor, heder helix, or pachysandra, are not acceptable. Such plants (except heder helix) shall be used in conjunction with woody shrubs. Woody ground covers such as horizontal junipers, contoneaster, helleri Japanese holly, germander, or herbaceous materials such as lirioppe, sedum, etc. are acceptable, provided no planting of a single species exceeds 12 feet (3.6 meters) in bed width. Exceptions can be made depending on specific site conditions.
 - d. All plants specified must be hardy to U.S.D.A. Zone 6. Specifications for all plant materials include adherence to the American Association of Nurserymen's "American Standard for Nursery Stock". Approved October 27, 1980, by American National Standards Institute, Inc.
 - e. Specifications for all plant materials include adherence to the American Association of Nurserymen's "American Standard for Nursery Stock". Approved October 27, 1980, by American National Standards Institute, Inc.
 - f. Specifications shall identify proper preparation of beds for trees, shrubs and ground cover in order to promote best chances for survival of plantings.
5. Locations for trees and shrubs must be coordinated with utilities, utility easements and conduits for street/site lighting.
6. All trees, shrubs and lawns are to be warranted and maintained by the Contractor (watered, fertilized, pruned, etc.) to ensure survival and to support the warranty for a minimum of one year after installation of the landscaping, but not less than one year from date of substantial completion. Upon completion of the maintenance and warranty period, the Facilities Management Division (FMD) and Construction Management Division (CMD) and the Contractor shall conduct a final walk-through of the site to ensure all plantings and lawn areas (grass) are acceptable. Minimum maintenance shall include weekly watering and spring and fall mulching.
7. Landscaping at all SWM and BMP must be coordinated with and approved by Fairfax County (Project Manager to coordinate with Maintenance and Storm Water Management Division).
8. The first approximately ten feet (3 meters) of lawn area nearest to the building on all sides shall be planted with sod. The requirement must be clearly reflected on the site plan, with an appropriate specification section included.

9. All project specifications shall require full lawn maintenance during the one year warranty/ maintenance period including watering, fertilizing, mulching, grass cutting, pruning, pest control, weeding of plant beds, edging, etc.
10. All new or disturbed drainage swales are to be sodded; or seeded, mulched and stabilized with biodegradable mat or fabric.
11. Specifications for seeding and mulching must include straw mulch, to protect seed during germination period.

F. Fire Lanes and Signage

1. All fire lanes and locations of signs shall be marked on the site plan per Section 313 of the Fairfax County Fire Prevention Code and the FRD Code Reference Package (See attachment 2000-A). Contractor is to provide required signs, curb markings and pavement striping.

G. Screening

1. If barrier fencing is required, coordinate with Owner for acceptable fencing, that must also comply with Zoning Ordinance requirements.
2. If block, masonry, stone or rubble screening or retaining walls are used, all wall elements must be securely anchored in place to prevent vandalism.
3. Screening walls and fence surfaces shall be treated with an anti-graffiti coating.

H. Pavement Design

1. All pavement sections for parking lots and roadways shall be designed based on CBR tests to be performed at appropriate locations during the initial geotechnical investigation. Specifications shall require the contractor to obtain additional CBR test results from soil samples at actual subgrade, and submit CBR results to engineer for final pavement design.
2. Any exterior architectural brick or stone paver's are to have a rough texture finish.
3. Provide a concrete pavement extension at the dumpster pad for truck tires. Include bollard's at rear and sides of dumpster location.
4. Dumpster space requirements are identified on Attachment 01000-B.

I. Site Lighting

1. Site lighting is installed by Dominion Virginia Power under the County's Municipal Street Lighting Contract. The site lighting design layout is to be prepared by the Architect and reviewed and modified as necessary by the Planning and Design Division (PDD). After approval by the County and Dominion Virginia Power the site lighting is to be incorporated into the site plan by the Architect. The empty conduit for the underground cables is to be included in the construction contract. Wiring and light fixtures are to be installed by Dominion Virginia Power. Architect is to prepare plats for Dominion Virginia Power easement locations based on approved site lighting

layout, if required. All site lighting designs must comply with Zoning Ordinance Glare Standards and shall utilize sharp cut-off fixtures.

J. General Requirements

1. Architect is to notify adjacent property owners of submission of site plan per DPWES and Zoning Ordinance requirements.
2. Contractor is to retain a testing agency to perform all site work testing and inspections more than 5' (1.5 meters) outside the building footprint. Contractor shall not use the same inspection firm as the County retains for special inspections.
3. Water meter must be properly sized to avoid unnecessary cost of purchasing oversized meter. Include note that Owner pays for water meter; Contractor picks up and installs.
4. Geotechnical report for projects located in problem soils must be submitted to, and reviewed and approved by DPWES Office of Site Development Services.
5. All utility company easements, new and existing, must be shown on the site plan. Architect shall prepare and submit to the County stamped mylar originals for all on-site and off-site easement plats for review and approval. All easement plats are to be prepared in the DPWES standard easement plat format. It should be noted that easement plats are required for sanitary and storm sewer facilities located on Fairfax County owned property.
6. Building corners are to be tied to property lines, using survey coordinates on site plan (geometric layout plan).
7. Identify service entry conduit for telephone, cable television, computer/data, and electric into appropriate room of building. Provide two-four inch conduits each for all Verizon (telephone) and Cox (CATV) from the main telephone room to the property line. Coordinate all new utility service and relocations, and identify all existing and proposed utility locations on the site plans.
8. Utility meters are not to be located at the front of the facility, and must be screened from view, where appropriate.

K. Sidewalks and Trails

1. A minimum of two (2) feet (0.6 meters) is required between the trail edge and any vertical obstructions such as trees, utility poles, signs, or other obstacles.
2. All vegetative material within a clearing envelope of at least 10 feet (3.0 meters) high by 10 feet (3.0 meters) wide shall be removed prior to trail construction.
3. The minimum allowable longitudinal slope for trail construction shall generally be no less than one percent (1%). Maximum longitudinal slopes shall meet ADA standards and shall not exceed 5%. The minimum allowable transverse (cross) slope is 2.0%.

4. If longitudinal slopes on concrete sidewalks are equal to or in excess of three percent (3%) and when the underlying soil has 34% or more passing the No. 200 sieve and has a PI of 13 or less, Fairfax County Standard UD-3 sidewalk under-drain shall be installed.
5. Side slopes adjacent to sidewalks and trails shall not exceed 2:1.
6. All storm pipes associated with sidewalks and trails shall be reinforced concrete pipe, except for UD-3 sidewalk under-drains, where required by PFM.
7. Generally, 20 feet (6.1 meters) shall be the minimum allowable turning radius on sidewalks and trails. However, the actual minimum allowable turning radius shall be computed by the design engineer based on expected use and site conditions.
8. Provide a paved surface from all emergency exits leading away from the building to a paved area of refuge.

L. Termite Control

1. Require under the slab termite control with a one-year warranty from the date of substantial completion.